# CITY OF SANTA BARBARA PRELIMINARY CHANNEL DESIGN LOWER SYCAMORE CREEK DRAINAGE IMPROVEMENTS PROJECT SANTA BARBARA, CA





LEGEND

FLOWLINE OF CREEK
PROPERTY LINE
FROM GUARD RAIL
OF CASEMENT
MAJOR CONTOUR\*\*
MINOR CONTOUR\*
MI

RETAINING WALL

ASPHALT CONCRETE ASSESSOR'S PARCEL NO. ASPHALT BEGINNING OF CURVE BENCHMARK END OF CURVE EDGE OF PAVEMENT FLOWLINE FIBER OPTIC CABLE GRADE BREAK GAS METER MANHOLE MANHOLE
MISCELLANEOUS
POINT OF INTERSECTION
POWER POLE
RIGHT OF WAY
SANTA BARBARA
S.B. FLOOD CONTROL
SOUTHERN CALIF. EDISON
SEWER CLEAN—OUT
SEWER MANHOLE
TOP OF BANK
WATER METER WATER METER
WATER VALVE
VARIES
VENT FOR WATER MAIN

SECTION CALLOUT

C REFERENCE LETTER

SHEET DETAIL

SHEET(S) REFERING TO DETAIL/ SECTION

(EXISTING CONDITIONS)
ORDINARY HIGH WATER
(AFTER IMPROVEMENTS)
- WOODEN FENCE
- METAL FENCE
POWER POLE
SIGN
STREET LIGHT 0 MANHOLE TRASH RECEPTACLE TREE TO BE REMOVED SURVEY MARKER SURVEY MARKER GEOTECHNICAL BORE HOLE LOCATION

\*\* ONLY EXISTING CONTOURS ARE SHOWN ON HESE PLANS TO ENHANCE PLAN READABILITY

#### SCOPE OF WORK

PRELIMINARY DESIGN OF SYCAMORE CREEK CHANNEL IMPROVEMENTS:

PHASE 1: FROM 5 FEET NORTH OF HIGHWAY 101 RIGHT OF WAY TO 100-150 FEET DOWNSTREAM OF PUNTA GORDA STREET; CONSTRUCTION ANTICIPATED TO START JUNE 1, 2012 (WORK IN CREEK WILL BEGIN JUNE 15, 2012 WITH APPROVAL BY QUALIFIED BIOLOGIST.)

PHASE 2: END OF PHASE 1 TO 55-75 FEET UP-STREAM OF PUNTA GORDA STREET BRIDGE TO JOIN EXISTING CREEK; CONSTRUCTION ANTICIPATED TO START JUNE 1, 2012 (WORK IN CREEK WILL BEGIN JUNE 15, 2012 WITH APPROVAL BY QUALIFIED BIOLOGIST.)

#### ESTIMATED EARTHWORK QUANTITIES

THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISH GRADE OR SUBGRADE. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED. PROPOSED SUBGRADE ELEVATION IS DEFINED AS THE DESIGN SURFACE ELEVATION OF EARTH TO BE CONSTRUCTED BENEATH PAVEMENTS OR STRUCTURES.

THE ABOVE QUANTITIES ARE FOR PERMIT PURPOSES ONLY AND HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

THE CONTRACTOR SHALL PERFORM AN EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING A LUMP SUM BID PRICE FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS EARTH MATERIALS.

#### DIRECTORY

OWNER OF PROPERTY:

CITY OF SANTA BARBARA P.O. BOX 1990 SANTA BARBARA, CA 93102-1990

BRIAN D'AMOUR, DEPARTMENT OF PUBLIC WORKS P.O. BOX 1990 SANTA BARBARA, CA 93102-1990

CIVIL ENGINEER:

GEOTECHNICAL ENGINEER: FUGRO WEST

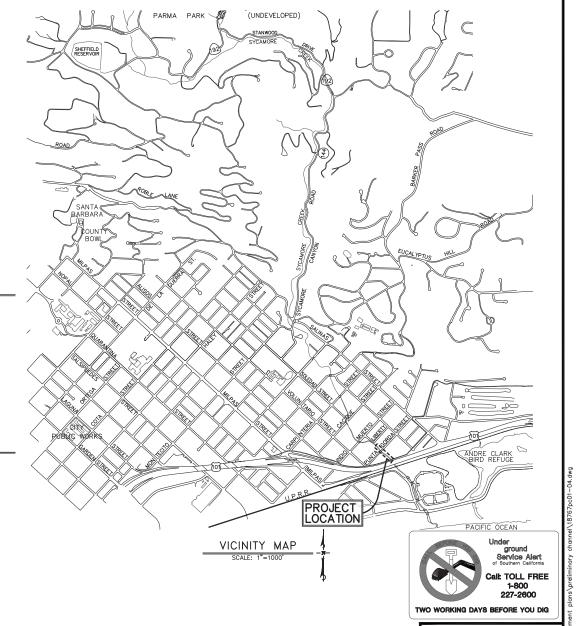
LANDSCAPE ARCHITECT: DAVID BLACK AND ASSOCIATES

STILLWATER SCIENCES

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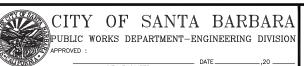
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## PRELIMINARY CHANNEL DESIGN LOWER SYCAMORE CREEK DRAINAGE IMPROVEMENTS PROJECT

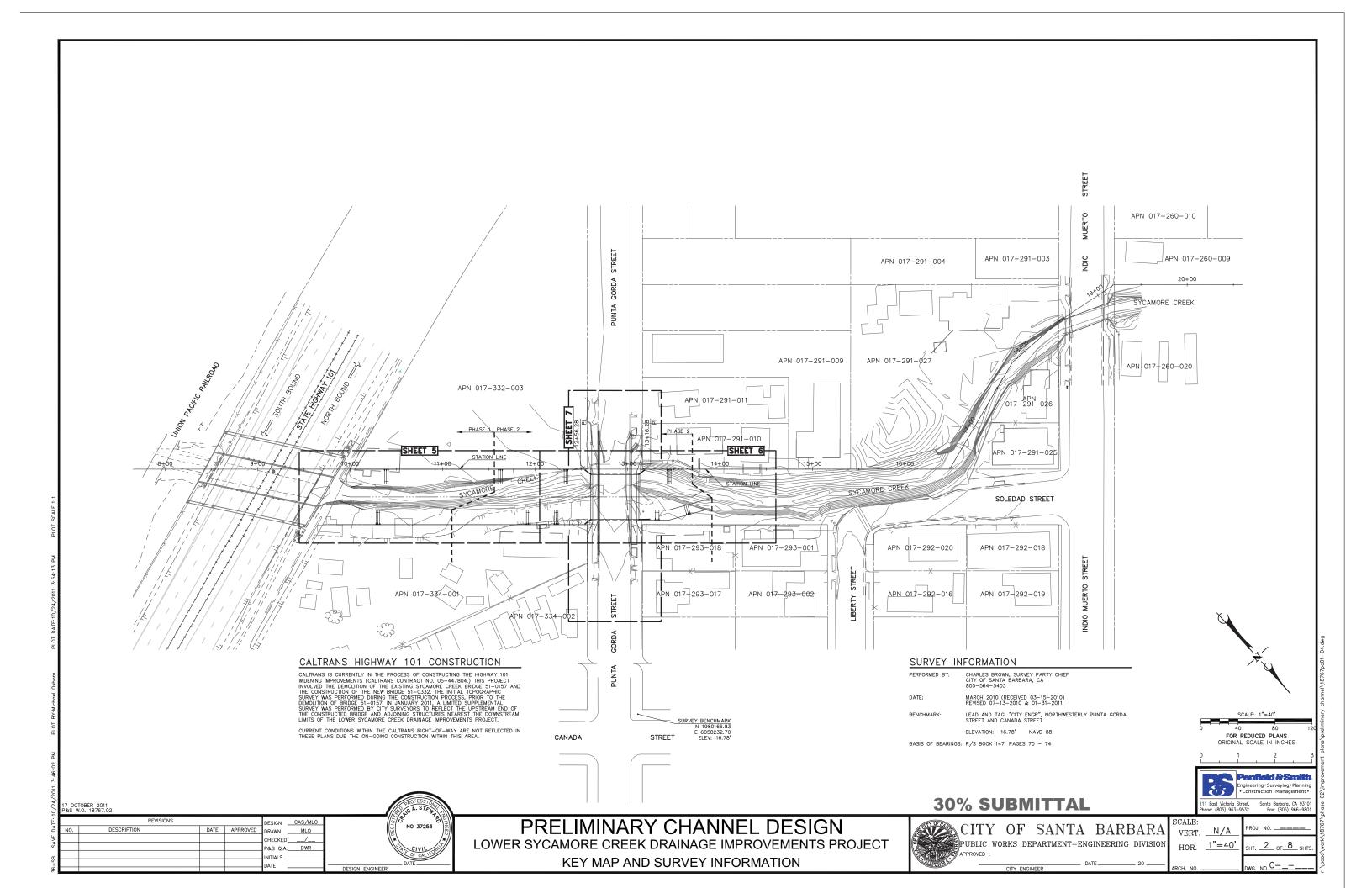
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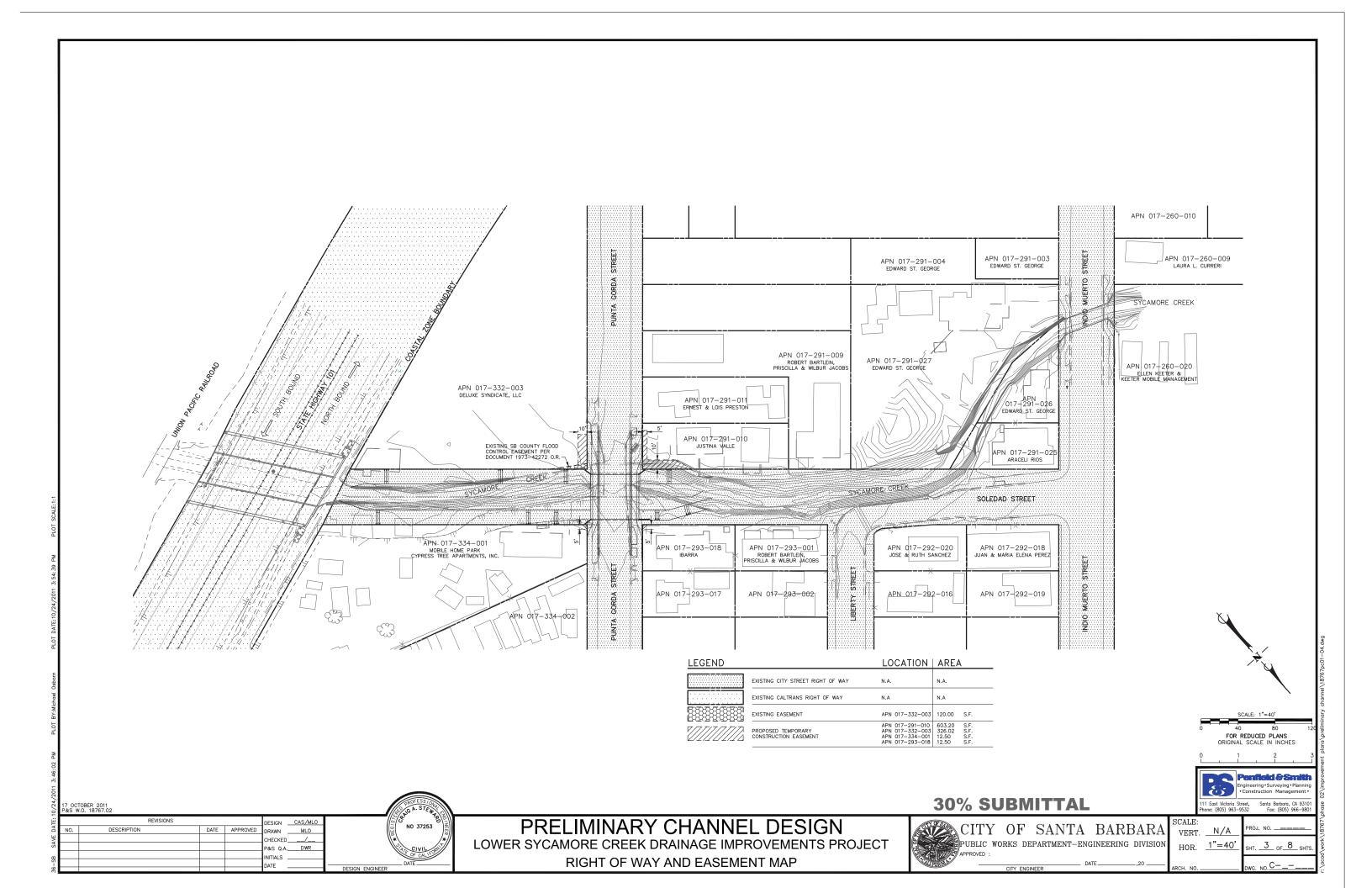


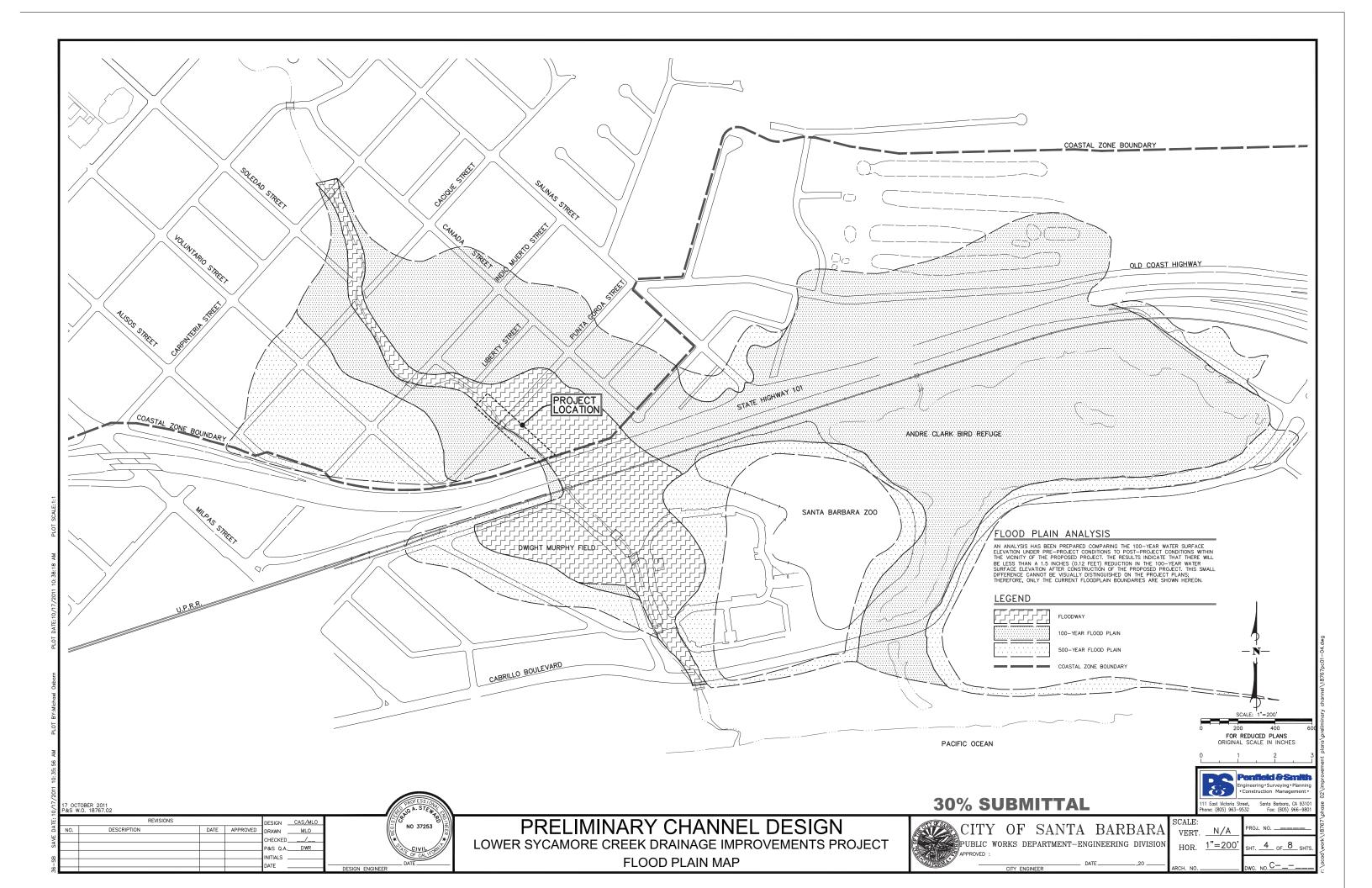
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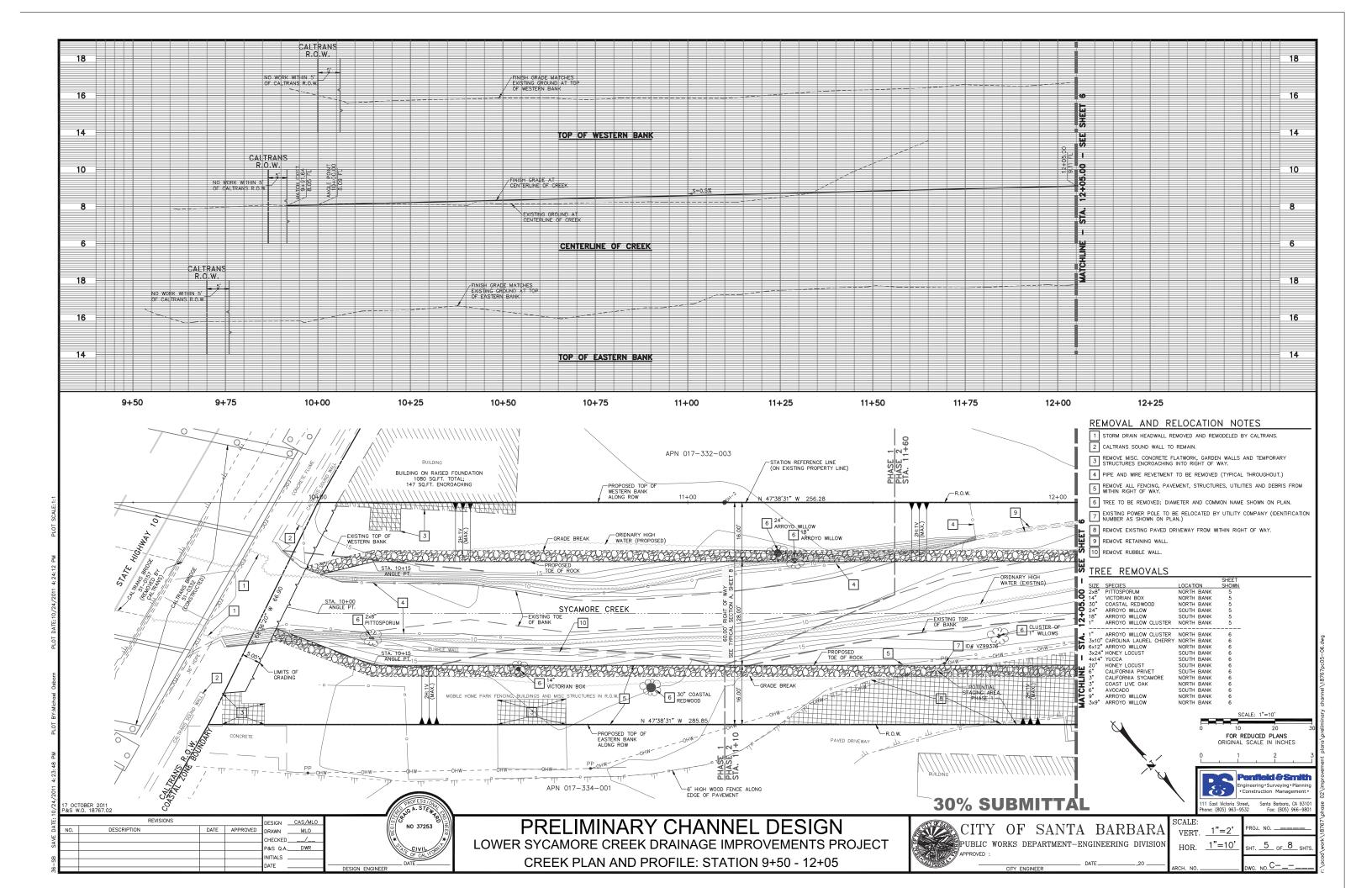
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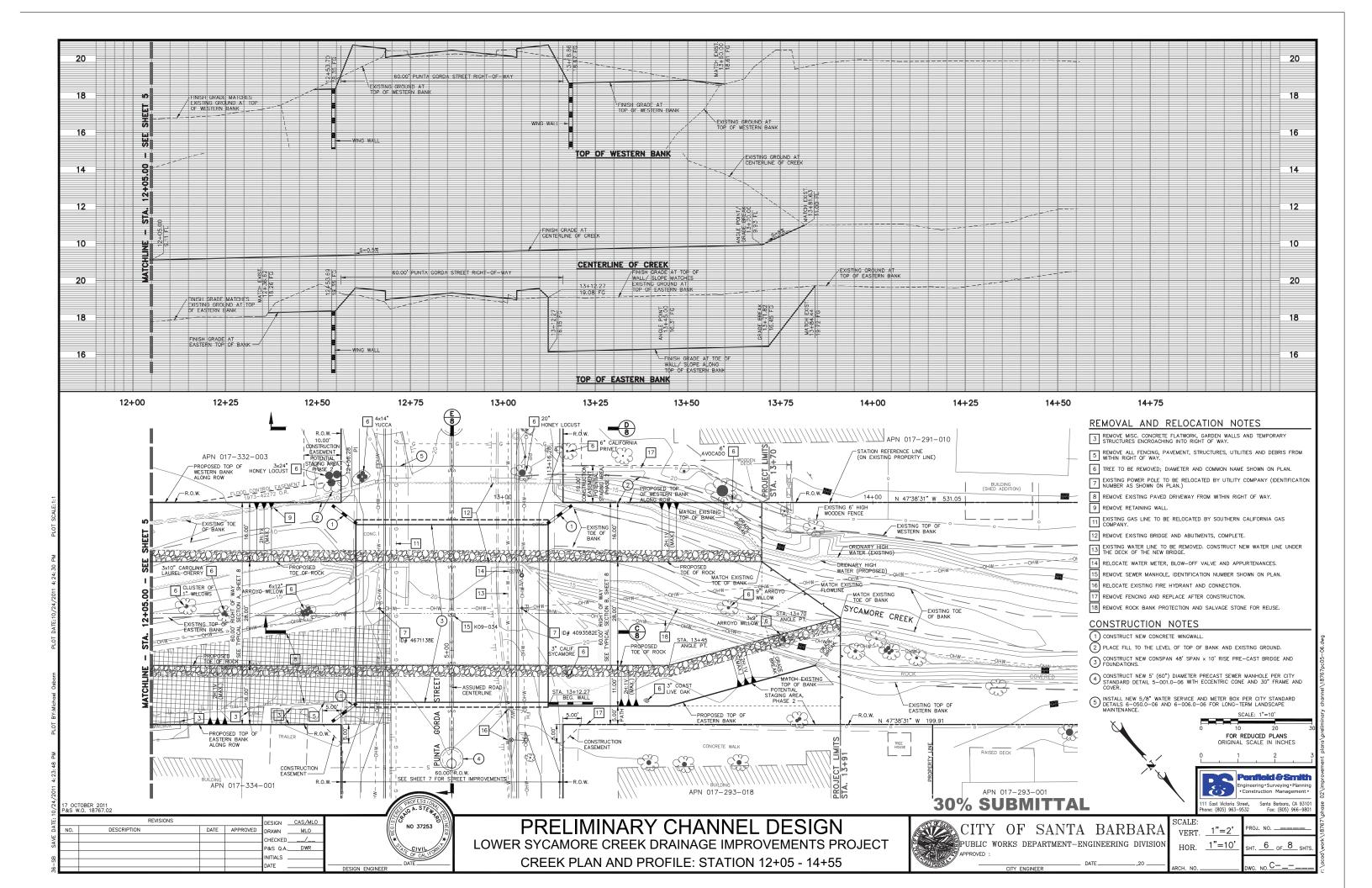
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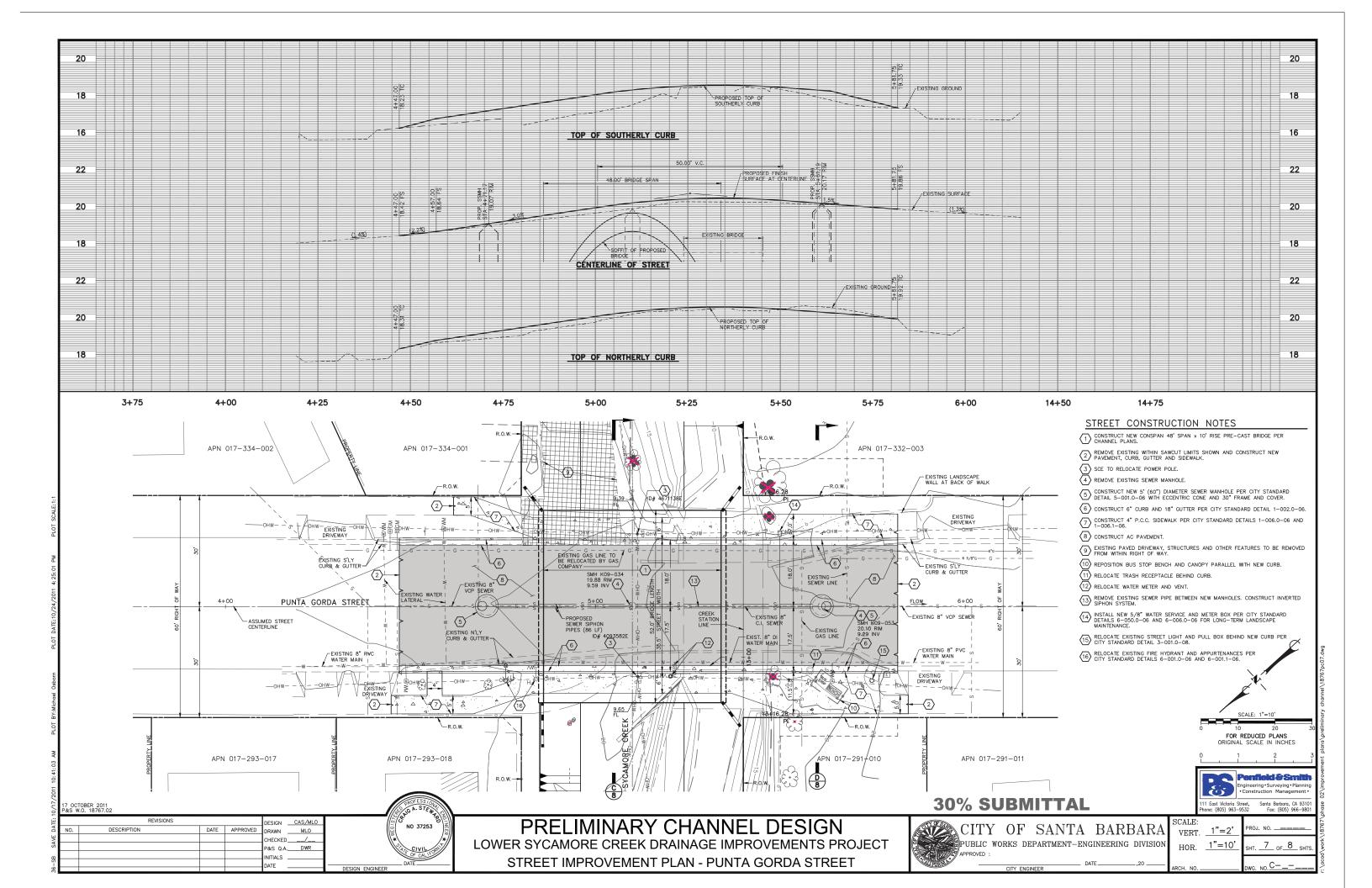


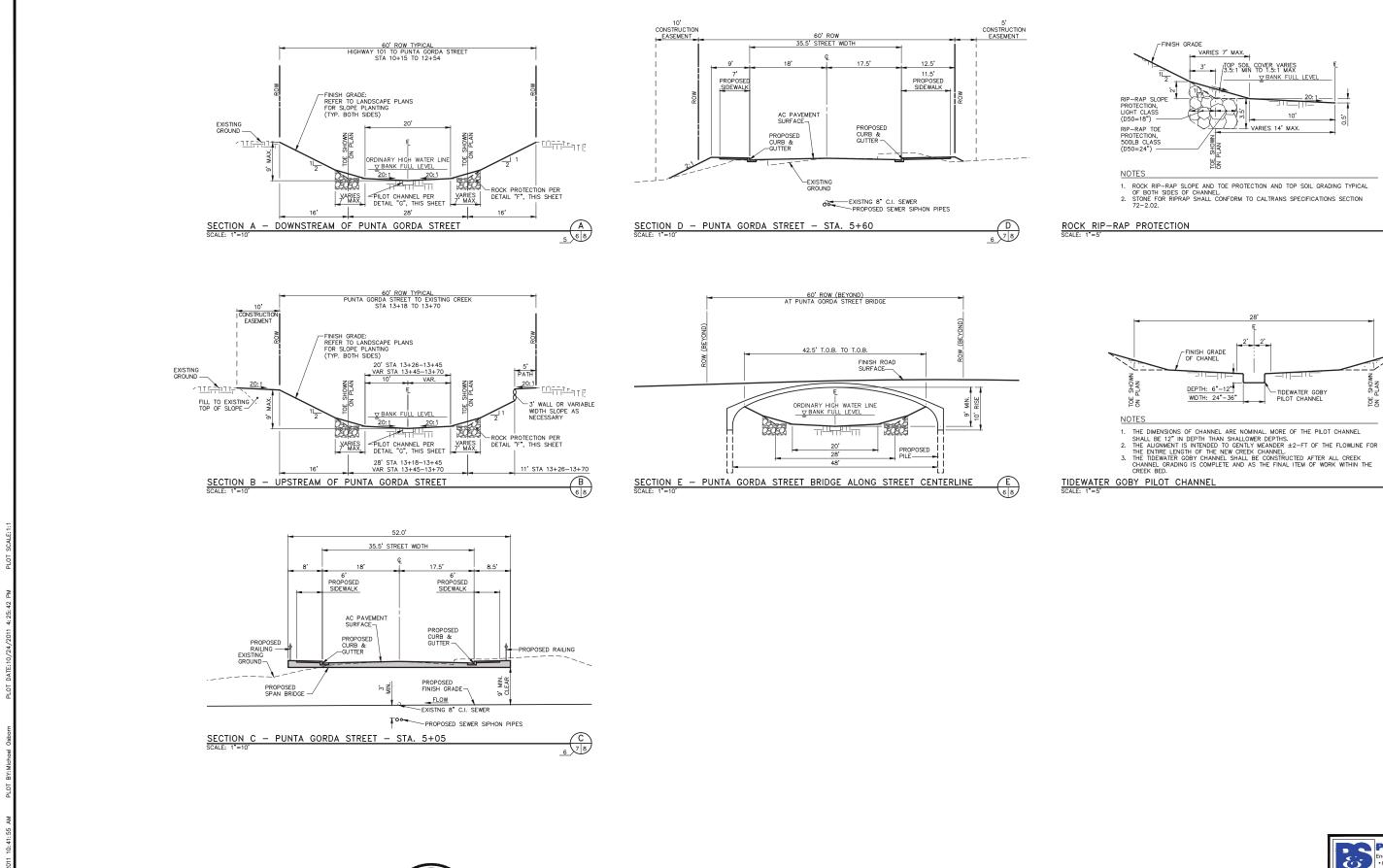












**30% SUBMITTAL** 

CITY OF SANTA BARBARA
PUBLIC WORKS DEPARTMENT-ENGINEERING DIVISION
APPROVED:

PRELIMINARY CHANNEL DESIGN
LOWER SYCAMORE CREEK DRAINAGE IMPROVEMENTS PROJECT
TYPCAIL CREEK AND STREET CROSS SECTIONS

05 AUGUST 2011 P&S W.O. 18767.02

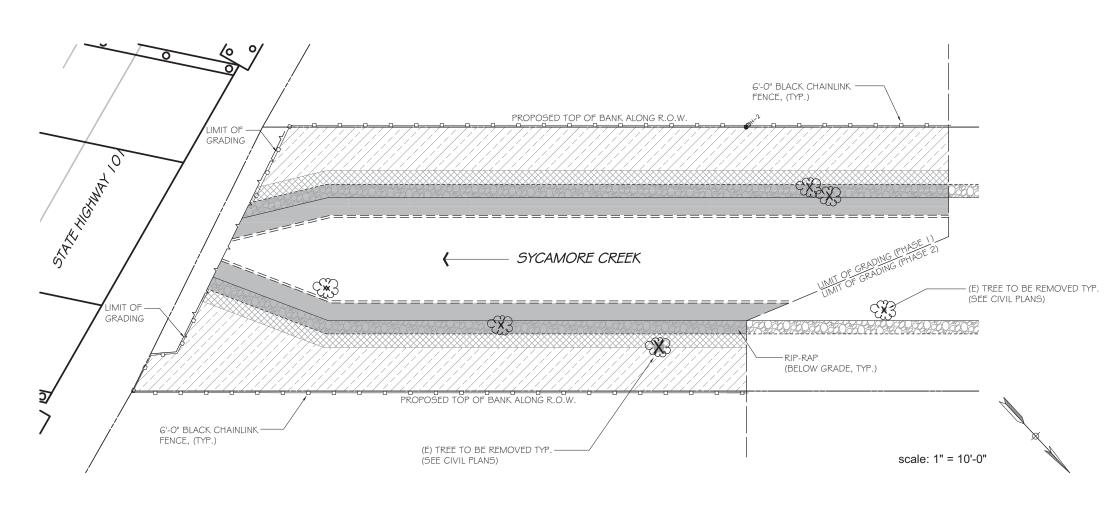
DESCRIPTION

ESIGN <u>CAS/MLO</u>

P&S Q.A. <u>DWR</u> INITIALS \_\_\_\_\_

RAWN MLO
HECKED \_\_/\_

NO 37253



Upper Bank Zone

## PLANT LEGEND PLANTING ZONES

-	$\overline{}$	-	$\overline{}$	_
_	$\overline{}$	_	_	_

Water's Edge Zone				
Estimated Length: 300 ft (Avera	age spacing 2'-0")			
Scientific Name	Common Name	Seed Source	Size	Quantity
Baccharis salicifolius	Mulefat	GS/ SBN	1 gal	37
Juncus textilis	Basket Rush	GS/ SBN	1 gal	38
Scirpus americanus	American Chair -Masters Rush	GS/ SBN	1 gal	37
Scirpus robustus	Bulrush	GS/ SBN	1 gal	38
			Total	150
Rip-rap Zone				
Estimated Area: 2,000 square	feet (2'-0" triangular spacing)			
Scientific Name	Common Name	Seed Source	Size	Quantity
Baccharis salicifolius	Mulefat	Local	live stakes	150
Salix exigua	Sandbar Willow	Local	live stakes	300
Salix lasiolepis	Arroyo Willow	Local	live stakes	50
			Total	500
Rip-rap Edge Zone				
Estimated Area: 835 square fe	et (2'-0" o.c. spacing)			
Artemisia douglasiana	Mugwort	GS/ SBN	1 gal	53
Leymus trificoides	Creeping Wildrye	GS/ SBN	1 gal	63
Rosa californica	California Wildrose	GS/ SBN	1 gal	42
Rubus ursinus	Blackberry	GS/ SBN	1 gal	52
			Total	210



Estimated Area: 3035 square feet (3'-0	" triangular spacing)			
Scientific Name	Common Name	Seed Source	Size	Quantity
Trees and Large Shrubs				
Heteromeles arbutifolia	Toyon	GS/ SBN	1 gal	10
Platanus racemosa	Western Sycamore	GS/ SBN	1 gal	15
Populus balsamifera	Balsam Poplar	GS/ SBN	1 gal	10
Prunus ilicifolia	Hollyleaf Cherry	GS/ SBN	1 gal	10
Quercus agrifolia	Coast Live Oak	GS/ SBN	1 gal	12
Rhamnus californica	Coffeeberry	GS/ SBN	1 gal	9
Salix lasiolepis	Arroyo Willow	GS/ SBN	live stakes	10
Sambucus mexicana	Elderberry	GS/ SBN	1 gal	10
Smaller Shrubs and Groundcovers				
Artemisia douglasiana	Mugwort	GS/ SBN	1 gal	35
Baccharis salicifolius	Mulefat	GS/ SBN	1 gal	22
Clematis ligusticifolia	Virgin's Bower	GS/ SBN	1 gal	18
Leymus condensatus	Giant Rye Grass	GS/ SBN	1 gal	22
Lonicera subspicata var. subspicata	Santa Barbara Honeys	uckle GS/ SBN	1 gal	44
Muhlenbergia rigens	Deer Grass	GS/ SBN	1 gal	20
Ribes divaricatum	Straggly gooseberry	GS/ SBN	1 gal	35
Ribes speciosum	Fuchsia-flowered goos	eberry GS/ SBN	1 gal	44
Rosa californica	California wildrose	GS/ SBN	1 gal	35
Rubus ursinus	Blackberry	GS/ SBN	1 gal	52
Salvia spathacea	Hummingbird Sage	GS/ SBN	1 gal	44
Venegasia carpesioides	Canyon sunflower	GS/ SBN	1 gal	18
Verbena lasiostachys	Verbena	GS/ SBN	1 gal	22
-			Total	497

#### LINETYPE LEGEND

6'-0" Black Chainlink Fence Total: Approx. 345 linear feet



## **PLANTING PLAN**

PHASE 1

TBD BID NO. SHT. DES. L-1 DWG. NO. of TBD

Preliminary Channel Design

Registration of the Channel Design

Registration of the Channel Design

Registration of the Channel Design

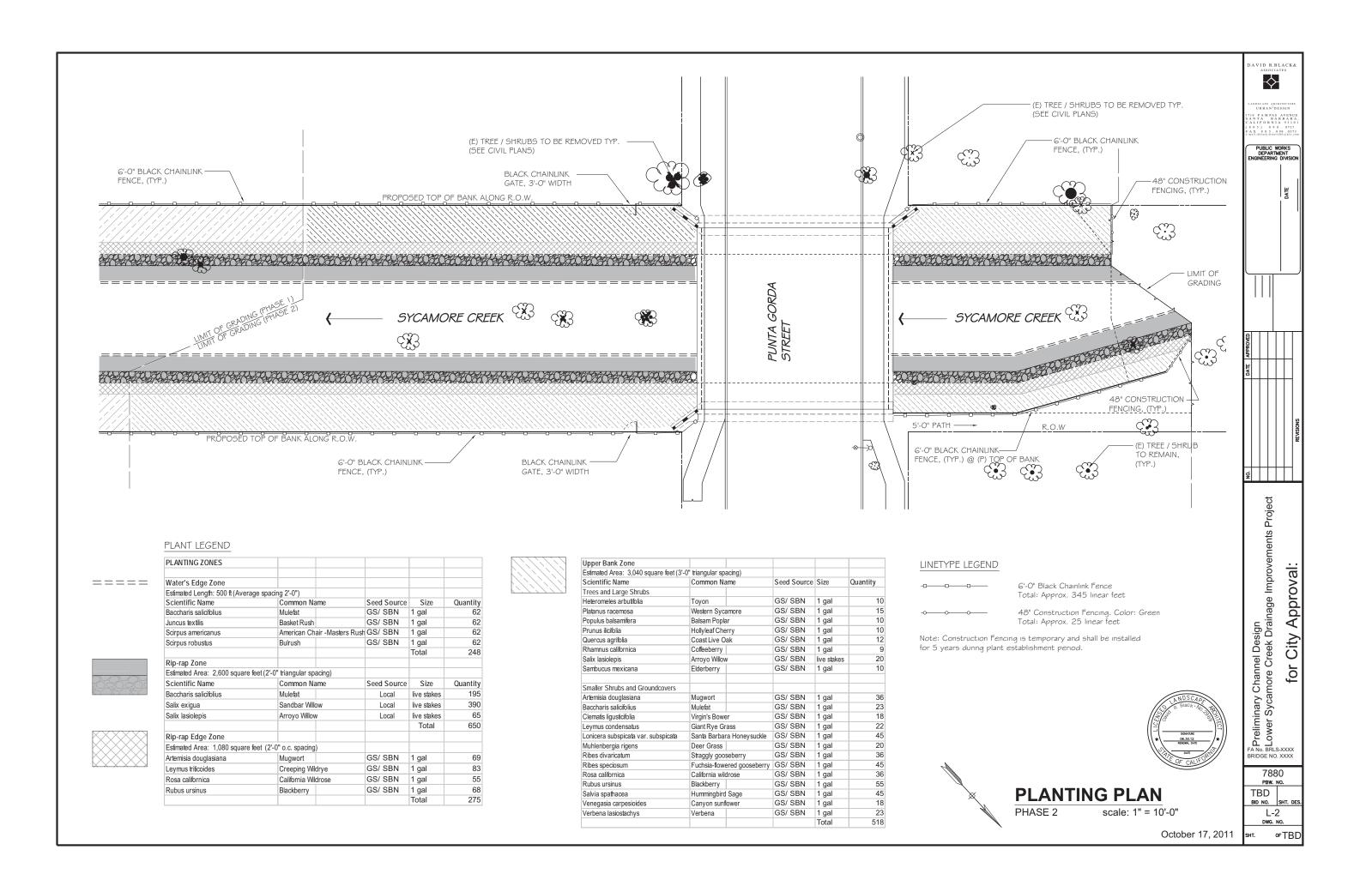
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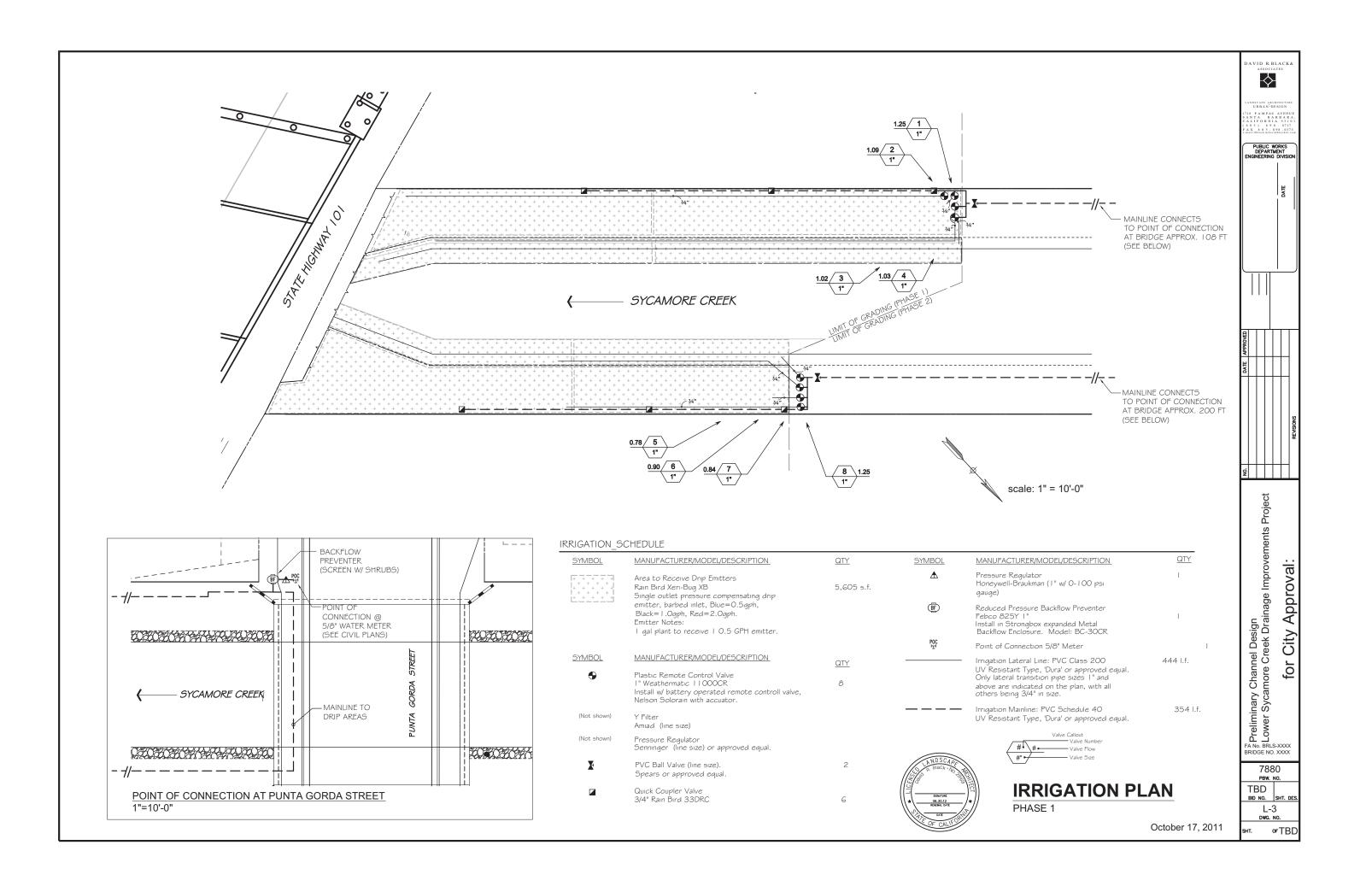
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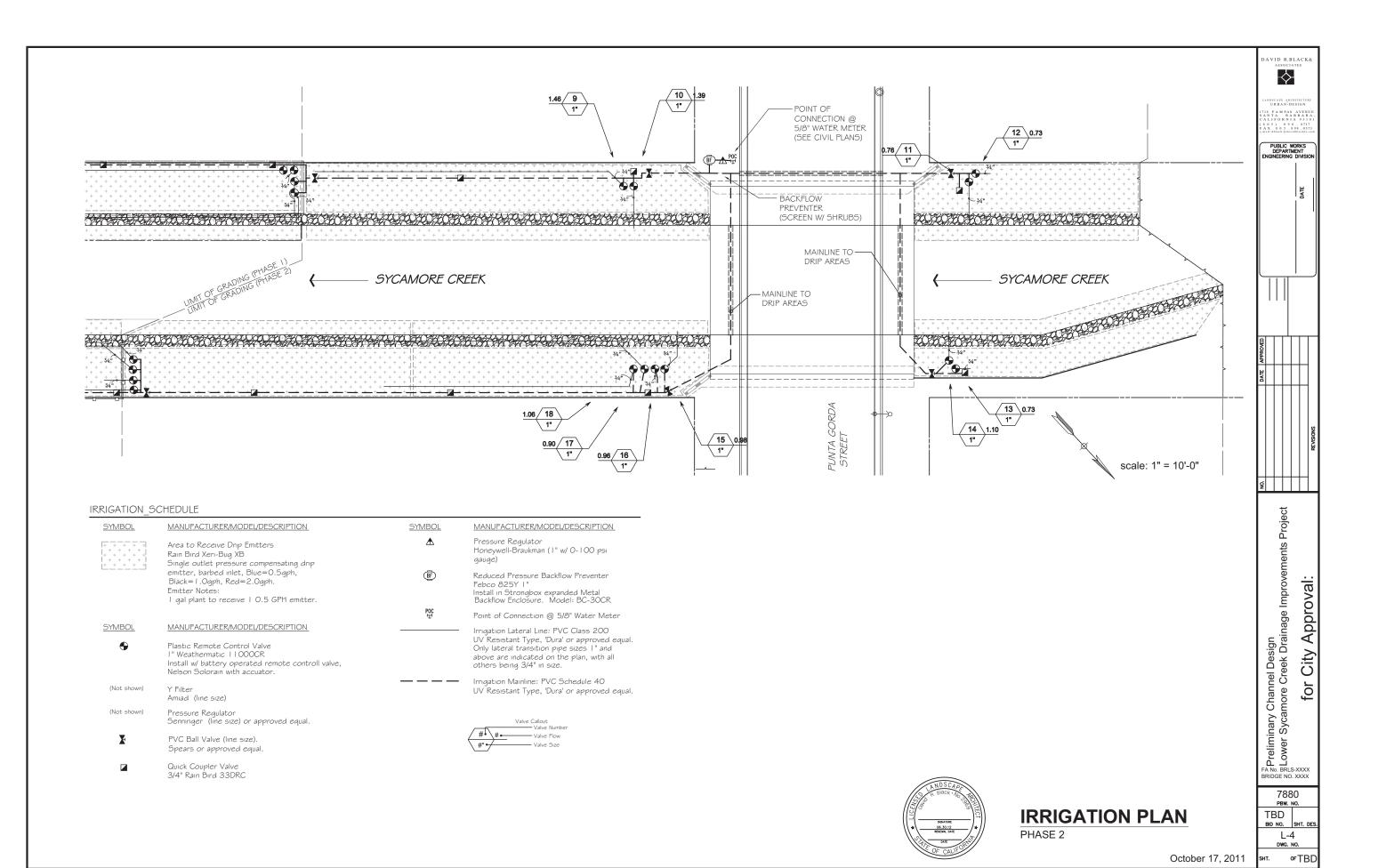
for City Approval:

AVID R.BLACK&

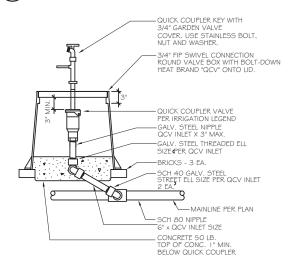
October 17, 2011



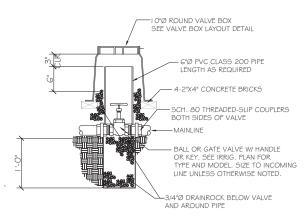




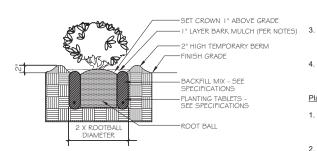




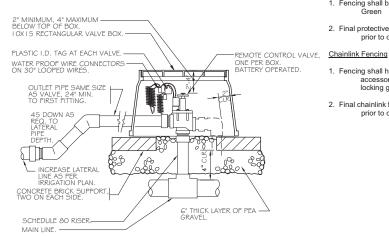




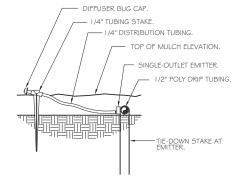












DRIP EMITTER WITH 1/4" TUBING

#### General Notes

- 1 The Contractor shall remove and dispose of all invasive plant species within the project limits. Removal shall be at the direction of the Engineer and the Restoration Specialist.
- 2. All invasive plant species shall be removed from all development and restoration areas throughout the designated plant
- Herbicides shall not be used within the Sycamore Creek habitat unless otherwise approved by the Engineer and Restoration Specialist. Target non-native or invasive species shall be removed by hand.
- 4. Rodentcides containing any anti-coagulant compounds (including but not limited to Warfarin, Brodifacacoum, Bromadiolone or Diphacinone), shall not be used.

#### Planting Notes

- Areas to be planted are shown on the drawings. Plant species quantities, and sources are shown on the drawings. All plants shall be 1gallon container size. See planting specifications.
- 2. Erosion control mats shall be installed prior to the installation of the drip irrigation system and prior to planting operations
- Restoration specialist shall be responsible for designating the final locations of all plant materials. Prior to planting operations, final plant locations shall be marked using colored flags.

#### Construction Fencing

- 1. Fencing shall be plastic type with steel stakes, 48" height. Color:
- 2. Final protective fencing layout shall be approved by the Engineer

- 1. Fencing shall have vinyl-clad fabric. Color: Black. All posts and metal accessories shall be painted black to match. Fencing shall include locking gates as shown on drawings.
- 2. Final chainlink fencing layout shall be approved by the Engineer prior to construction

#### Irrigation Notes

- See irrigation legend on sheet L-2 for a complete description of all symbols shown on the drawings.
- 2. All planting areas shown on the drawings shall be irrigated with a temporary drip irrigation system (3 years). All drip irrigation equipment within the
- The point-of-connection (P.O.C.) for the irrigation system shall be at the new 3/4" water meter shown on the drawings. Verify location with Engineer. Provide a line-size hall valve in a round valve hox
- 3. Contractor shall install the backflow preventer in a locking expanded metal enclosure as shown on the drawings. Verify final location with the Engineer.
- Install a pressure regulator with a 0-100 psi gauge on the backflow preventer. Adjust pressure as necessary to ensure optimum irrigation performance.
- It is the intention of the irrigation system design to provide a temporary drip irrigation system for the purpose of irrigating all plantings shown on the drawings. The Contractor is responsible for making any adjustments to the layout of the irrigation system to insure100% irrigation coverage of all
- The irrigation system is designed assuming a static water pressure of a minimum of 75 psi at the point of connection. Prior to installation of irrigation system, contractor shall verify pressure at point of connection and report any discrepancy to the Engineer.
- The Contractor shall provide and install battery-operated controls and actuators on each remote control valve as shown on the irrigation legend. Program each actuator to provide optimum irrigation to all plantings after planting and during the plant establishment
- 8. All valves shall be installed in locking plastic valve boxes. All valve boxes shall be surface-mounted. Secure boxes to grade with rebar staples. Install one valve per box. Verify final locations with Engineer.
- All guick couplers shall be located near valve locations for ease of access. Verify final location with the Engineer.
- 10. All pressure mainline and lateral line pipe within the project limits shall be surfaced-mounted and secured with rebar staples.
- 11. All drip piping shall be installed after the installation of the erosion control matting. The drip irrigation pipe and emitters shall be surface-mounted and secured with galvanized metal staples.
- 12. It shall be the contractor's responsibility to install the irrigation system in accordance with all local codes
- 13. Indicated pipe locations are schematic. Do not place pipe under concrete paving except where absolutely necessary. The irrigation Contractor shall coordinate pipe installation with other trades.
- 14. All piping installed under paving, through walls or footings shall be placed inside schedule 40 PVC sleeves of adequate size to allow free movement of the pipe in the sleeve.



## **DETAILS & NOTES**

PHASE 1 & PHASE 2

VID R.BLACK

Improvements Approval sign Drainage I City Channel Des ımore Creek I for iinary ( Sycan EA No. BRLS-XXXX BRIDGE NO. XXXX

Project

7880 PBW. NO. TBD BID NO. SHT. DI

> L-5 DWG. NO. OF TBD

October 17, 2011

#### SECTION 02810 - IRRIGATION SYSTEM

#### PART 1 - GENERAL

#### 1.01 SUMMARY

- Drawings, general provisions and special provisions of contract, apply to this section.
- Furnish all labor, material, equipment and services necessary to furnish and install the temporary irrigation system as shown on the drawings and described herein.
  - Automatic irrigation system including piping, fittings, drip irrigation equipment,
  - Valves, backflow preventer, and fittings.
  - Battery-operated control equipment, actuators.
  - Testing.
  - Associated interior and exterior plumbing, and accessories to complete the
- Pipe sleeves.

#### 1.02 QUALITY ASSURANCE

- A. Manufacturer's Directions: Manufacturer's directions and detailed drawings shall be followed in all cases where the manufacturers of the articles used in the work of this section furnish directions expering points not shown on the drawings or specified.
- B. Explanation of Drawings:
  - 1. Due to the scale of the drawings, it is not possible to indicate all offsets, fittings, sleeves, etc., which may be required. The Contractor shall carefully investigate the structural and finished conditions affecting all of the work and plan the work accordingly, furnishing such fittings, etc. as may be required to meet such conditions. Drawings are generally diagrammatic and indicative of the work to be installed. The work shall be installed in such a manner as to avoid conflicts between irrigation systems, planting and civil features.
  - 2. The Contractor shall not install the irrigation system as shown on the drawings when it is obvious in the field that obstructions, grade differences or discrepancies in area dimensions exist that might not have been considered in engineering. Such obstructions or differences should be brought to the attention of the Engineer. In the event this notification is not performed, the Contractor shall assume full responsibility for revisions necessary.

#### 1.03 SUBMITTALS

#### A. Material List:

- Furnish the articles, equipment, materials, and processes specified in the drawings and specifications. No substitutions will be allowed without written request and approval.
  - Submit complete materials list prior to performing work. Include the manufacturer, model number and description of all materials and equipment

#### B. Record Drawings

- These drawings shall also serve as work progress sheets and shall be the basis for measurement and payment for work completed. Make neat and legible annotations thereon daily as the work proceeds, showing the work as actually installed. These drawings shall be available at all times for
- Dimension from 2 permanent points of reference, structure corners, sidewalk, or road intersections, etc., the location of the following items:
  - Connection to existing water lines.
  - Remote control valves
  - c. Ball valves.
  - Routing of sprinkler pressure lines (dimension max. 100 feet along routing).
- C. Operation and Maintenance Manuals:
  - Prepare and deliver to the Engineer within ten calendar days prior to completion of construction, two binders containing the following information:
    - Index sheet stating Contractor's address and telephone number, list of equipment with name and addresses of local manufacturer's
    - b. Catalog and parts sheets on every material and equipment installed under this contract.
    - Written statement guaranteeing all irrigation materials and workmanship for a period of 1 year from the date of final acceptance.
    - Complete operating and maintenance instruction on all major equipment.

#### 1.04 DELIVERY, STORAGE, AND HANDLING

A. Handling of PVC Pipe and Fittings: The Contractor is cautioned to exercise care in handling, loading, unloading, and storing of PVC pipe and fittings. Transport all PVC so as not to subject it to undue bending or concentrated external load at any point. Any section of pipe that has been dented or damaged shall be discarded and, if installed, shall be replaced with new piping.

#### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- General: Use only new materials of brands and types noted on drawings, specified herein, or approved equals. All materials shall be consistent with City of Santa Barbara standards for irrigation systems.
- B. PVC Pressure Main Line Pipe and Fittings:
  - All pressure mainline pipe shall be ultraviolet-resistant type.
  - Pressure main line piping shall be 'Dura' Schedule 40 PVC, or approved equal.
  - Pipe shall be made from an NSF approved Type I, Grade I PVC compound conforming to ASTM resin specification D1784. All pipe shall meet requirements as set forth in Federal Specification PS-22-70, with an appropriate standard dimension (S.D.R.) (Solvent-weld pipe).
  - PVC solvent-weld fittings shall be Schedule 40, 1-2, II-I NSF approved conforming to ASTM test procedure D2466.
  - Solvent cement and primer for solvent-weld and fittings shall be of type and installation methods prescribed by the manufacturer.
  - 6. All PVC pipe shall bear the following markings:
    - Manufacturer's name.
    - b. Nominal pipe size.
    - c. Schedule or class.
    - d. Pressure rating in P.S.I
    - e. NSF (National Sanitation Foundation) approval.
    - f. Date of extrusion.
  - All fittings shall bear the manufacturer's name or trademark, material designation, size, applicable I.P.S. schedule and NSF seal of approval.

#### C. PVC Non-Pressure Lateral Line Piping:

- 1. All lateral line pipe shall be ultraviolet-resistant type
- Non-pressure lateral line piping shall be 'Dura' Class 200 PVC with solventweld joints, or approved equal.
- Pipe shall be made from NSF approved, Type I, Grade II PVC compound conforming to ASTM resin specification D1784. All pipe shall meet requirements set forth in Federal Specification PS-22-70 with an appropriate standard dimension ratio.
- Except as noted in Paragraphs 1 and 2 of Article 2.01.B, all requirements for non-pressure lateral line pipe and fittings shall be the same as for solventweld pressure main line pipe and fittings as set forth in Article 2.01.B of this section
- D. PVC Pipe Sleeves: All piping installed under paving, through walls or footings shall be placed inside Schedule 40 PVC pipe sleeves of adequate size to allow free movement of the pipe in the sleeve.
- E. Copper Pipe and Fittings: Type "L" copper pipe with wrought copper fittings shall be used related to backflow preventer installation. Type "K" copper pipe shall be used for irrigation system bridge crossings.

#### F. Ball Valves

- Ball valves shall be line-size PVC type.
- All ball valves shall be installed in round valve boxes.
- G. Quick Coupler Valves: Rainbird No. 33DRC with valve key, or approved equal.
- H. Remote Control Valve Equipment:
  - Shall be programmable battery-operated type with actuater as shown on the drawings.
  - 2. Install one per remote control valve per manufacturer's recommendations.
- I. Electrical Control Valves:
  - All electric control valves shall be of the size and type shown on the drawings.
  - All electric control valves shall have a manual flow adjustment.
- Provide and install one control valve box for each electric control valve.

#### Control Valve Boxes:

- Use round box for all ball valves, Carson Industries, with green-bolt down cover or approved equal. Extension sleeve shall be PVC-6 inches minimum size.
- Use rectangular box for all electrical control valves, Carson Industries, with locking cover or approved equal.

#### K. Drip Irrigation Equipment

Drip irrigation equipment (to include piping, y-filter, pressure regulator and emitters) shall be of the size and type shown on the Drawings.

#### PART 3 - EXECUTION

## 3.01 EXAMINATION

#### Site Conditions:

All scaled dimensions are approximate. The Contractor shall check and verify all size dimensions and report any discrepancies to the Engineer prior to proceeding with work in this section.

- Exercise extreme care in excavating and working near existing utilities.
  Contractor shall be responsible for damages to utilities which are caused by
  the Contractor's operations or neglect. Verify location of existing work
- Coordinate installation of irrigation materials including pipe, so there shall be no interference with utilities or other construction or difficulty in planting trees, shrubs and groundcovers.
- 4. Carefully check grades before starting work on the irrigation system
- Contractor shall minimize trenching in root zones of existing trees. Preserve and protect all existing trees during irrigation operations.

#### 3.02 PREPARATION

- A. Physical Layout:
  - Prior to installation, stake out all pressure supply lines, routing and location of remote control valves and drip irrigation pipe.
  - Layout shall be approved by the Engineer prior to installation.

#### B. Water Supply:

- Connect the irrigation system to water supply point-of-connection indicated. Verify P.O.C. location with Engineer prior to the start of work.
- Make connections at approximate locations shown. Contractor is responsible for minor changes caused by actual site conditions.

#### 3.03 INSTALLATION

- A. The irrigation system is temporary (3 years). All valve boxes, pressure and lateral line piping shall be surface-mounted. Secure all valve boxes and piping with rebar staples as required.
- B. Trenching and Backfill Under Paving:
  - 1. Backfill trenches located under areas where paving, asphaltic concrete or concrete will be installed with sand (a layer 6 inches below the pipe and 3 inches above the pipe) and compact in layers to 95 percent compaction, using manual or mechanical tamping devices. Compact trenches for piping to equal the compaction of the existing adjacent undisturbed soil and leave in a firm unyielding grade. Set in place, cap and pressure test, all piping under paving prior to the paving work.
  - Piping under existing walks is generally done by jacking, boring or hydraulic driving, but where any cutting or breaking of sidewalks or concrete is necessary, it shall be done and replaced by the Contractor as a part of the contract cost. Obtain permission to cut or break sidewalks or concrete from the Engineer. No hydraulic driving will be permitted under concrete paving.
  - Provide for a minimum cover of 18 inches between the top of the pipe and the bottom of the aggregate base for all pressure and non-pressure piping installed under asphaltic concrete paving.

#### C. Assemblies

- Routing of irrigation lines as indicated on the drawings is diagrammatic. Install lines (and various assemblies) in such a manner as to conform with the details.
- Install multiple assemblies in plastic lines. Provide each assembly with its own outlet.
- Install all assemblies specified herein in accordance with respective detail. In absence of detail drawings or specifications pertaining to specific items required to complete the work, perform such work in accordance with best standard practice with prior approval of the Engineer.
- PVC pipe and fittings shall be thoroughly cleaned of dirt, dust and moisture before installation. Installation and solvent welding methods shall be as recommended by the pipe and fitting manufacturer.
- On PVC to metal connections, work the metal connections first. Use teflon tape, or approved equal, on all threaded PVC, and on all threaded PVC to metal joints. Light wrench pressure is all that is required. Where threaded PVC connections are required, use threaded PVC adapters into which the pipe may be welded.

#### D. Drip Irrigation System:

- Install drip irrigation system prior to the installation of the erosion control
- Install the drip irrigation system as designated on the plans. Contractor shall make any and all adjustments to the layout of the sprinkler heads to insure 100% irrigation coverage of all planting areas shown on the drawings.

#### 3.04 TEMPORARY REPAIRS

The City reserves the right to make temporary repairs as necessary to keep the irrigation system equipment in operating condition. The exercise of this right by the City shall not relieve the Contractor's responsibility under the contract documents.

#### 3.05 EXISTING TREES AND SHRUBS

Where it is necessary to excavate adjacent to existing trees and shrubs, use all possible care to avoid injury to trees, tree roots and shrubs. Excavation in areas where 2 inch and larger roots occur shall be done by hand. All roots 2 inches and larger in diameter, except directly in the path of pipe or conduit, shall be tunneled under and shall be heavily wrapped with burlap to prevent scarring or excessive drying. Where a ditching machine is run close to trees having roots smaller than 2 inches in diameter, the wall of the trench adjacent to the tree shall be hand trimmed, making clean cuts through. All cut roots 1 inch and larger in diameter shall be painted with 2 coats of tree paint.

#### 3.06 FIELD QUALITY CONTROL

- A. Adjustment of the System:
  - If it is determined that adjustments in the irrigation equipment will provide proper and more adequate coverage, the Contractor shall make adjustments prior to planting.

#### B. Testing of Irrigation System:

- Request the presence of the Engineer in writing at least 48 hours in advance
  of testing.
- Test all pressure lines under hydrostatic pressure of 150 pounds per square inch and prove watertight.

NOTE: Testing of pressure mainlines shall occur prior to installation of electrical control valves.

- Test all piping under paved areas under hydrostatic pressure of 150 pounds per square inch and proved watertight prior to paving.
- Sustain pressure in lines for not less than 2 hours. If leaks develop, replace joints and repeat test until entire system is proven watertight.
- Make all hydrostatic tests only in the presence of the Engineer or other dulyauthorized representative of the City. Do not backfill pipe until it has been duly inspected, tested, and approved.
- 6. Furnish necessary force pump and all other test equipment.
- 7. When the irrigation system is completed, perform a performance test in the presence of the Engineer, to determine if the water coverage for planting areas is complete and adequate. Furnish all materials and perform all work required to correct inadequacies of coverage due to deviations from drawings, or after bringing this to the attention of the Engineer. This test shall be accomplished before any plantings are planted.
- Upon completion of each phase of work, test and adjust the entire system to meet site requirements.

#### C. Material List:

Equipment or materials installed or furnished which are not indicated on the drawingsor specified, may be rejected and the Contractor required to remove such materials from the site at the Contractor's expense.

#### 3.07 MAINTENANCE

- A. The entire irrigation system shall be under full automatic operation for a period of 7 days prior to any planting.
- The Engineer reserves the right to waive or shorten the operation period.

#### 3.08 CLEANING

Clean-up as each portion of work progresses. Remove refuse and excess dirt from the site, sweep all walks and paving clean, and repair damage sustained on the work of others to original conditions.

#### .09 FINAL OBSERVATION PRIOR TO ACCEPTANCE

- A. Operate each system in its entirety for the Engineer at time of final observation. Any items deemed not acceptable by the Engineer shall be reworked to the complete satisfaction of the Engineer.
- B. Show evidence to the Engineer that the City has received all accessories, charts, Record Drawings, and equipment as required before final observation can occur.

#### 10 OBSERVATION SCHEDULE

- Notify the Engineer in advance for the following observation meetings, according to the time indicated:
- Pressure supply line installation and testing: 48 hours.

Pre-job conference: 7 days.

- Lateral line and sprinkler installation: 48 hours.
- Coverage test: 48 hours.
- Final inspection: 7 days.

  B. When observations have been conducted by other than the Engineer, show evidence in writing of when and by whom these observations were made.
- C. No site observations will commence without record drawings. In the event that the Contractor calls for a site visit without record drawings, without completing previously noted corrections, or without preparing the system for said visit, he shall be responsible for reimbursing the Engineer at his current billing rates per hour portal to portal (plus transportation costs) for inconvenience. No further site visits will be scheduled until this charge has been paid and received.

#### 3.11 DEMONSTRATION

Provide the maintenance personnel with instructions for use of irrigation equipment and show evidence in writing to the Engineer at the conclusion of the project that this service has been

END OF SECTION

## **IRRIGATION SPECIFICATIONS**

PHASE 1 & PHASE 2

October 17, 2011

LANDSCAPE ARCHITECTURE
URBAN-DESIGN
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RANTA RARBARA
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PBW. NO.

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BID NO.

SHT. DES.

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DWG. NO.

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#### SECTION 02900- LANDSCAPE PLANTING

#### PART 1 - GENERAL

#### 1.01 SUMMARY

- Drawings, general provisions and special provisions of contract, apply to this
- Furnish all labor, materials and equipment necessary to provide and install all plants as shown on the Drawings. The Contractor's work shall include:
  - Prepare all planting areas for planting.
  - Provide and install erosion control fabric
  - Install all plant materials per the planting plan
  - Dispose of trash, debris and surplus materials.
  - Maintain the planting until such time as the project has been accepted
  - Preserve and protect existing trees designated on plans to remain

#### 1.02 SUBMITTALS

All plant material shall be contract-grown and Contractor-furnished. Contractor shall be responsible for coordinating the availability and delivery of all plants listed on the plant list. All substitutions due to unavailability must be requested in writing and approved prior to confirmation of ordering. All materials shall be subject to inspection by the Restoration Specialist at any time after confirmation

#### 1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

#### Delivery

- Deliver all plants to the site with legible identification labels.
- State correct plant name and size indicated on plant list
- Use durable waterproof labels with water-resistant ink which will remain
- Protect plant material during delivery to prevent damage to root ball or
- The Contractor shall notify the Engineer 7 days in advance of delivery of all plant materials and shall submit an itemized list of the plants in each delivery.

#### Storage

- Store plant material in shade and protect from weather.
- Maintain and protect plant material not to be planted within 4 hours in a

The Contractor is cautioned to exercise care in handling, loading, unloading and storing of plant materials. Plant materials that have been damaged in any way shall be discarded, and, if installed, shall be replaced with undamaged materials at the Contractor's expense

#### 1.04 JOB CONDITIONS

Field Conditions: The planting plan is diagrammatic. Scaled dimensions are approximate. Prior to proceeding with installation work, the Contractor shall verify all dimensions with field conditions and notify the Engineer of any deviation on the Drawings.

#### PART 2 - PRODUCTS

All project plant material shall be contract- grown by one or other of the following nurseries. The Contractor shall be responsible for coordinating with the nursery for the propagation and delivery of plant materials as well as payment of all costs associated with the plant materials grown as part of this contract.

Growing Solutions PO Box 30081 Santa Barbara, CA 93130 Contact: Don Hartley or Karen Flagg Phone Number: (805) 452-7561

Santa Barbara Natives Inc. Gaviota, CA 93117 Contact: Jeff Nighman Phone Number: (805) 698-4994

#### Container Plants

- All plant materials shall be paid for by the Contractor as part of the contract bid. Approximately 670 one-gallon containers and 115 cuttings shall be grown and/or provided for the project. The grower shall deliver the plants to the project site with approval of the Restoration Specialist. The Contractor shall make arrangements for delivery of the plants to the project site. Contractor shall unload plants at the project site
- The Contractor shall inspect the container plants and cuttings prior to planting and provide the Restoration Specialist with a written acceptance of the plant material. Any plant material observed by the Contractor as damaged or in a condition that would limit long-term viability shall be identified in writing to the Restoration Specialist. If the Contractor installs any plant material of questionable health without the Restoration Specialist's approval, the Contractor shall replace the unacceptable material before the final acceptance at the Contractor's expense

After acceptance by the Contractor of the plant material at the project site, the Contractor shall have full responsibility for the health of the container plants. These plants shall be maintained in good health and protected from animal damage, drought, rain damage, pests, wind, flood,

Contractor shall stockpile plant containers for pick up by the grower.

Shall be coconut fiber mats (100% bio-degradable coconut fiber mat, North American Green, Type C-125 BN, or equivalent, 6.67 feet wide).

- Water: The City shall be responsible for furnishing water
- Protective Wire Fencing

Fencing shall be vinyl-clad galvanized welded wire mesh, 14 gauge, 1" x 2" openings, 48" finish height, with painted steel stakes and galvanized wire ties. Vinyl and stake color: Green.

#### PART 3 - EXECUTION

#### 3 01 EXAMINATION

- Obtain certification that final grades to within 0.1 foot have been established prior to commencing planting operations. Provide for inclusion of all amendme settling, etc. Contractor shall be responsible for shaping all planting areas as indicated on Drawings or as directed by the Engineer.
- Inspect plants for injury or insect infestation
- C. Do not begin planting until deficiencies are corrected or plants replaced.
- The Contractor shall verify the locations and depths of any underground utilities prior to excavation. Damage to any such utilities resulting from the Contractor's vork shall be repaired at his expense
- The Contractor shall investigate the site for any subsurface drainage or unusual soil conditions which might prove detrimental to the success of the design as specified on the plan insofar as growth and survival of plant material is concerned. Should any such condition exist, the Contractor shall notify the Engineer and submit a proposal for corrective measures and their cost. Should the Contractor fail to provide such notification, he will be held solely responsible for any corrections deemed necessary by the City and the Engineer should

#### 3.02 PREPARATION

#### Clearing and Grubbing:

- Contractor shall clear and grub all new planting areas shown in the Drawings. Existing plantings, (unless otherwise indicated) and debris shall be removed and disposed of off-site. All weeds shall be removed as directed in Section 3.03. Existing trees indicated on the plans shall be
- At the time of planting, the top 2 inches of all areas to be planted shall be free of stones, stumps, or other deleterious matter 1 inch in diameter or larger, and shall be free from all wire, plaster or similar objects that would be a hindrance to planting or maintenance

#### Final Grades:

- Minor modifications to grade may be required to establish the final grade.
- Finish grading shall insure proper drainage of the site.
- All areas shall be graded so that the final grades will be 1 inch below adjacent paved areas, sidewalks, valve boxes, clean-outs, drains, etc., or as indicated on drawings.
- Eliminate erosion scars prior to commencing maintenance period
- Disposal of Excess Soil: Dispose of any unacceptable soil at an offsite location approved by Engineer.

#### 3.03 WEED REMOVAL

#### A. General

- The work required under this section shall include but is not limited to all labor, tools, materials, equipment, and incidentals required to remove weeds from the project site prior to plant installation. Weed removal shall occur as shown on the Drawings, contained in these specifications, and directed by the Restoration Specialist.
- Weed removal shall be implemented upon completion of the civil work by 3.04 EROSION CONTROL FABRIC INSTALLATION the civil contractor, working under a separate contract, and prior to plant
- Prior to using any herbicide or pesticide, the Contractor shall obtain the approval of the City of Santa Barbara Parks Department, who will review the proposal for compliance with the City's Pest Management Plan. The Contractor must have prior experience in identifying native and nonnative plants and applying herbicides in a precise and environmentally sensitive manner, so as not to affect adjacent native species, apply excessive amounts of herbicide that can be transported to surface water, or to cause accidental spills or releases. Contractor must be able to distinguish between native and non-native plants at the project site
- The project site is located along the lower banks of Mission Creek, on City property where pesticide use is prohibited except under unusual circumstances. Herbicides are not to be used for weed removal without approval by the Restoration Specialist.

#### B Submittals:

In the event that herbicide use is approved by the Restoration Specialist and allowed under the emergency provisions of the City's Integrated Pest
Management Plan, the Contractor shall provide a description of the herbicide to be used at the project site for the weed removal including dilution and application rates; manufacturer's name; application equipment and methods; measures to protect the public, including signs, barriers, notifications, etc; measures to avoid spraying protected plants; measures to avoid discharge into creek water; evidence that the applicator is licensed to apply the herbicide; statement that the herbicide is approved by state and federal agencies for work in the type of environment at the project site.

#### C Herbicide

AquaMasterTM shall be used in the event that herbicide use is approved by the Restoration Specialist and allowed under the emergency provisions of the City's Integrated Pest Management Plan.

#### Execution

- Weed Removal shall occur at the discretion of the Restoration Specialist but no sooner than 10 days after the civil contractor has completed his work at the project site, unless otherwise directed by the Restoration Specialist. The final graded areas will be hand watered to a depth of 12 inches during the 10 days after the Civil Contractor has completed his work to stimulate weed seed germination. The initial watering shall occur within 24 hours of the civil contractor leaving the project site. A second weed removal event shall occur, at the discretion of the Restoration Specialist, immediately prior to plant installation.
- Weed removal shall occur when weeds have germinated on the graded areas, and they exhibit sufficient growth and foliage to ensure effective treatment. The period of time from the hand-watering to the weed
- The first weed removal event shall be accomplished by manual methods using hand tools. No herbicides shall be used during the first weed removal. Non-targeted plants shall not be cut or removed.
- The second Weed Removal event shall occur at the discretion of the ration Specialist. The project site shall be hand watered to a depth of 12 inches to stimulate weed growth. Weed removal shall not occur for at least 10 days to allow for weed growth. Weed removal shall be accomplished by the application of herbicides to any emerging weeds allowed under the emergency provisions of the City's Integrated Pest Management Plan. If not allowed, the weeding shall be accomplished by mandagement rain. In the landwar, the weeking shall be accomplished, hand. The Restoration Specialist shall be present during weed removal with herbicides to ensure appropriate and safe treatment of target species only; to monitor effectiveness of the treatment; and to ensure avoidance of the protected trees and shrubs. No weed removal shall occur until the Restoration Specialist has approved the Herbicide
- Non-targeted plants shall not be treated with herbicide. Contractor shall exercise great caution in applying the herbicide to the targeted plants only, and to avoid spillage.
- Herbicide shall not be applied if there has been a rain within 24 hours and foliage is still wet, or if rain is forecasted to occur within 48 hours or if winds exceed 15 miles per hour. Contractor shall postpone or curtail weed removal until these conditions are not present.
- Crews shall spray individual plants using backpack units with a narrow spray to minimize drift and accidental spraying of nearby native species. Non-targeted plants shall not be sprayed, nor shall not receive drift from nearby spraying. Contractor shall exercise great caution in applying the herbicide to the targeted plants only. No herbicide shall be sprayed on open water or in the creek bed. A dye shall be included in the spray to assist in tracking coverage. Plastic shields shall be used, as necessary to avoid overspray. No herbicide application may occur within 25 feet of
- For both weeding events, dead weed material shall be removed.

#### Inspection and acceptance

Treatment Plan

- Within 24 hours after the completion of each weed removal event, the Restoration Specialist shall inspect the site. If, after inspection, the Restoration Specialist is satisfied with weed removal, the Contractor shall be notified in writing of stage acceptance.
- If, after inspection, the Restoration Specialist is dissatisfied with the work and its conformance to the Drawings and specifications, the Restoration Specialist shall prepare a written punch list of necessary corrective actions on defective work for that stage. The corrections must be completed by the Contractor within 5 days of the initial inspection.

- The Contractor shall install the coconut fiber erosion control fabric prior to pletion of the drip irrigation pipe installation and prior to planting operations.
- Erosion control fabric shall be installed over all planting areas shown on the plan. Verify final layout with the Engineer prior to installat
- Install the erosion control fabric according to the manufacturer's

#### 3.05 PLANT INSTALLATION

The work required under this section shall include but is not limited to all labor, tools, materials, equipment, and incidentals required to conduct the planting of shrubs at the project site as shown on the Drawings,

- contained in these specifications, and directed by the Restoration Specialist.
- The Contractor must have prior experience in installing native plants in a careful manner, so as not to significantly disturb the root mass Contractor must be able to distinguish between native species delivered
- Planting shall occur at the completion of the installation of irrigation, and as determined by the Restoration Specialist

#### B. Planting

- At the beginning of the first day of planting, the Restoration Specialist shall meet with the Contractor to review planting procedures. The Restoration Specialist shall place pin flags to mark the locations where the Contractor shall install individual container plants.
- The planting layout will be subject to field design by the Restoration Specialist. The Restoration Specialist reserves the right to make minor adjustments in plant layout to accomplish the intent of the Drawings.
- The Contractor shall cut through the erosion control fabric in order to
- Planting pits shall be excavated to a minimum of twice the width of the iner and the same depth as the contained
- Container plants shall be placed by removing the entire plant from the container with the root ball intact. The rootball shall be placed without damaging the roots. The plant shall be set plumb and braced in position until the backfill has been tamped solidly around the rootball.
- The planting hole shall be filled with native soil to that the plant is level with adjacent ground. Plants shall be watered immediately after planting. Contractor must check each plant after watering to correct any soil settling during and after planting.
- The Contractor shall provide cuttings as designated on the plant list. All cuttings shall be approved by the Restoration Specialist regarding length, caliper and physical condition.
- All cuttings shall be planted as directed by the Restoration Specialist
- Contractor shall keep the color-coded pin flags next to the installed plants in order to monitor individual species during the first three months of maintenance period, or until the Restoration Specialist determines that they are no longer needed.

#### C. Watering

Contractor shall be responsible for watering during the planting event in a frequency and amount to keep the plants in a healthy and vigorous manner. The Contractor shall make daily inspections of all installed plants to determine the need for supplemental water. If more than 10 percent of the plants appear to be stressed from any cause, the Contractor shall immediately contact the Restoration Specialist.

#### D.

The Contractor shall clean up the project site at the end of every day. All plant containers and unneeded equipment shall be removed from the site.

#### Protective Wire Fencing

Install fencing where shown on the Drawings with stakes at approximately 6'- 0" on center. Verify final location with Engineer

#### 3.07 RECORD DRAWINGS

The Contractor shall prepare record Drawings after planting. The record Drawings shall include information on the location and size of the plantings by species. A legend listing all materials shall be included on the record Drawings

- Plants installed under this contract shall be guaranteed for one year, from the date of planting, against mortality resulting from defects in planting.
- Plant materials that are dead or otherwise unhealthy due to poor installation practices and that are therefore not in conformance with these specifications, shall be replaced at the Restoration Specialist's direction and at the Contractor's expense using plants from the specified grower.

#### 3.09 INSPECTION AND ACCEPTANCE

- Within 5 days after the completion of plant installation, the Restoration Specialist shall inspect the plantings. If, after inspection, the Restoration Specialist is satisfied with plant installation, the Contractor shall be notified in writing of stage
- If, after inspection, the Restoration Specialist is dissatisfied with the plantings to date and its conformance to the Drawings and specifications, the Restoration Specialist will prepare a written punch list of necessary corrective actions on defective work for that stage. The corrections must be completed by the Contractor within 5 days of the initial inspection.

END OF SECTION

## PLANTING SPECIFICATIONS

PHASE 1 & PHASE 2

October 17, 2011

VID R.BLACK&

PUBLIC WORKS

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#### SECTION 02970 - LANDSCAPE MAINTENANCE

#### PART 1 - GENERAL

#### 1.01 SUMMARY

- A. Shall include all labor, tools, materials, equipment, and incidentals required to conduct the landscape maintenance during the contract period at the project site as shown on the drawings, contained in these specifications, and directed by the Engineer.
- B. The maintenance period shall be sixty (60) months in duration. It shall begin immediately after final acceptance of the plant installation and shall continue for ninety days thereafter until the end of the contract period. The maintenance period shall include 36 months for the project irrigation system, at which time it shall be removed.
- C. The Contractor must have prior experience in maintaining native herbs, grasses, and shrubs of southern California. Contractor must have successfully completed at least three other projects involving native plants. Contractor must use maintenance techniques and practices appropriate for native wetland plants, and will plan for the appropriate level of effort to provide the required maintenance as described in this section in a timely manner. Contractor must be able to distinguish between native and non-native plants.
- D. The Contractor shall ensure that container plant survival and weeding performance standards are met through plant maintenance activities during the maintenance period. These activities include weeding, application of supplemental water, replanting of diseased or dead plants, mowing and the general care and nurturing of installed container plants and sod replacement areas.
- E. Maintenance also includes inspection and repair of irrigation system, repair of eroded areas, and general site housekeeping and clean up.
- F. The Contractor is hereby notified that the estuary contains the endangered species, the tidewater goby, that is protected from harm and harassment under the Federal Endangered Species Act. The Contractor shall not conduct any work that could disturb the estuary banks or bed without prior approval of the Restoration Specialist.
- G. The Contractor shall provide a single point of contact for maintenance.
- H. The Contractor shall have a crew size of three laborers and a foreman that is available to respond to City requests within 48 hours.
- The project site is located along the banks of Mission Creek on City property designated as pesticide free. Herbicide use may only occur on an emergency basis and one time per year in accordance with the City's Integrated Pest Management Plan. Approval of the use of herbicides during the maintenance period may or may not be

#### 1.02 PERFORMANCE STANDARDS

A. Provided that the Contractor has met all other previous requirements related to site preparation, earthwork, planting, and plant maintenance, the Restoration Specialist has the discretion, at any time during the maintenance period, to reduce the performance standards, or otherwise modify them to lower levels, if there are environmental or biological factors beyond the control of the Contractor that could not be reasonably foreseen by the Contractor and that would clearly prevent the Contractor from achieving the stated performance standards. Fallure to achieve

performance standards shall require replanting by the Contractor, as approved by the Restoration Specialist

- B. In the event of a flood, severe drought, or windstorm, as determined by the Restoration Specialist, the Contractor shall not be required to provide replacement plantings without a contract change order.
- C. At a minimum, the Contractor shall conduct inspections every seven (7) days during the maintenance period. During each inspection, the Contractor shall record general observations of plant survival and weed cover. The results of these observations shall be used to identify problems as they begin, so that corrective maintenance actions can be taken before a larger problem develops. The Restoration Specialist will also conduct periodic independent assessments of plant survival.
- D. The performance standards for the maintenance period related to plant survival shall be periodically measured by the Restoration Specialist during the Maintenance period to determine if progress towards the final standards is being made. At the end of the first 1 month of the maintenance period, 100% of all installed container plants and cuttings present at the beginning of the maintenance period must be present and healthy. At the end of 90 days of the maintenance period, 85% of all installed container plants and cuttings present at the beginning of the Maintenance period must be present and healthy. If these performance standards have not been met, the Restoration Specialist shall specify the amount of replanting to be conducted by the Contractor at the end of 90 days of the maintenance period necessary to achieve the performance standards. Replacement plants must be derived from local stock and purchased from a nursery specialized in growing local native plants such as Growing Solutions or Santa Barbara Natives. Failure to meet the 90-day standards will result in non-payment of invoices until realdeament plantin has been completed.
- E. During the first 90 days of the Maintenance period, the Restoration Specialist shall make periodic measurements of plant health and survivorship. If the Restoration Specialist notes that 15 percent or more of the plants are unhealthy or dead, at any time during the maintenance period, the City shall withhold payment of invoices until the source of the problem has been identified and corrective actions taken.
- F. The performance standard for weed control throughout the maintenance period is that plant cover by noxious invasive weeds at the project site shall not exceed 10% of the total vegetative cover at any time. These species include wild fennel, cocklebur, mustard, white sweetclover, cheeseweed, castor bean, filaree, bermuda grass, English ivy, kikuy grass, Japanese honesyuckle, arundo, European sea rocket or any other aggressive weed designated by the Restoration Specialist. Plant cover by non-native species that are common to the site that are not considered noxious or highly aggressive or otherwise a threat to the native flora will not exceed 10% of the total native plant cover. These species include naturalized grasses such as brome grass, wild oats, barley, and ryegrass. The cover of native and non-native plants will be measured on a periodic basis during the maintenance period by the Restoration Specialist to determine if the performance standard has been achieved. Failure to meet standards will result in non-payment of invoices until weed cover standards are met

#### 1.03 SUBMITTALS

A. MONTHLY INSPECTION REPORT. The Contractor shall submit a monthly inspection report to the Restoration Specialist during the maintenance period. The report shall indicate the status of installed plants, condition of erosion control mat, weed conditions, condition of irrigation system, watering coverage, corrective actions taken, and recommendations for future actions, as necessary.

- B. HERBICIDE TREATMENT PLAN. In the event that herbicide use is approved by the Restoration Specialist and allowed under the emergency provisions of the City's Integrated Pest Management Plan, Contractor shall provide a description of the herbicide to be used at the project site for the plant maintenance including dilution and application real reamantacturer's name; application equipment and methods; measures to protect the public, including signs, barriers, notifications, etc; measures to avoid spraying protected plants, measures to avoid discharge into creek water; evidence that the applicator is licensed to apply the herbicide; statement that the herbicide is approved by state and federal agencies for work in the type of environment at the project site.
- C. RECORD DRAWINGS. At the end of 24 months of the Maintenance period, Contractor shall prepare Record Drawings that show the location of plants.

#### PART - TWO PRODUCTS

#### 2.01 HERBICIDE

AquaMasterTM shall be used in the event that herbicide use is approved by the Restoration Specialist and allowed under the emergency provisions of the City's Integrated Pest Management Plan.

#### 2.02 WATER

Water for irrigation during the maintenance period shall be provided by the City from on-site points-of-connection. The City shall supply water to the project irrigation system at no cost to the Contractor. The Contractor shall have full authority to use water as needed to meet these Specifications.

#### PART - THREE EXECUTION

#### 3.01 WATERING

- The Contractor shall be responsible for watering the installed plants with irrigation system as necessary to maintain the plants in a healthy and vigorous condition throughout the duration of the maintenance period and before final acceptance.
- B. The frequency and duration of watering operations shall depend on current weather patterns and site-specific soil moisture conditions. The Contractor shall be responsible for receiving approval from the Restoration Specialist the watering schedule and application rates.
- C. Watering shall provide an adequate supply of moisture within the root zone of each plant during the normal growth period of the plant.
- D. The Contractor shall be responsible for conducting site investigations at least as specified above, or at a greater frequency, as necessary to throughout the maintenance period to evaluate the condition of plants, the need for irrigation, and the application of water. These investigations will include inspection of all plants for signs of inappropriate watering, including water stress (caused by lack of water or overwatering), stunted growth, wilting, premature leaf loss, and premature yellowing of leaves. If 10% of the plant material appears to be stressed and in danger of perishing, the Contractor shall consult the Restoration Specialist to determine the frequency and duration of additional or decreased watering. The Restoration Specialist shall provide approval to the Contractor of any modifications to the approved watering schedule.
- E. At no time shall water be applied in a way that will cause erosion, damage to plants, runoff, or damage to existing or naturally colonizing vegetation. If the watering application rates need adjustment, the Contractor shall be responsible for immediately contacting the Restoration Specialist. The Contractor will assume full responsibility for corrective actions resulting from inappropriate water applications and failure to contact the Restoration Specialist for direction.

#### 3.02 REPLACEMENT PLANTING

- A. The purpose of replacement planting under this section is to replace plants that died during the maintenance period due to natural mortality or factors that are outside the control of the Contractor. In these situations, the City will provide the plants for replacement planting. However, replacement planting for plant mortality due to poor installation or maintenance practices shall be conducted by the Contractor (plants and labor) at the Contractor's expense as noted elsewhere in the specifications.
- B. Replacement planting shall occur, as needed, at the end of the 90-day maintenance period based on whether the performance standards for these periods have been met. The Restoration Specialist shall provide all replacement plants, unless replacement planting is due to plant mortality from poor installation or maintenance practices. The Contractor shall provide the Restoration Specialist with 30 days advance written notice when requesting replacement plant materials.
- C. The Restoration Specialist shall provide all replacement plants, as needed. For the sake of bidding, the Contractor shall assume 100 replacement plants to be installed at the end of the maintenance period due to natural mortality, and as such, the City will provide the plants and the Contractor shall install them.
- Installation methods for replacement plants shall be in strict conformance to the drawings, these specifications, and the Restoration Specialist's direction.

#### 3.03 WEED CONTROL

- The Contractor is responsible for maintaining all individual plants and all areas in between, as shown on the drawings, free of weeds during the duration of the maintenance period in accordance with these specifications.
- Throughout the maintenance period, weeds shall be removed before reaching 4 inches in height or forming flowering heads to meet the standards above at all times of the maintenance period.
- C. All weeding shall occur by hand pulling and hand tools. Weed removal shall cause minimal disruption to the root systems of the installed plants and seed germinated shalts.

D. If emergency herbicide use is allowed once a year under the City's Integrated Pest Management Plan, the Contractor shall provide a schedule for the annual herbicide treatment to the Restoration Specialist at least 14 days prior to the event. During each event, hand crews shall spray individual plants using backpack units with a narrow spray to minimize drift and accidental spraying of nearby native species. Herbicide shall be applied so that it will not drift, or show signs of drift, outside the designated revegetation planting area. At all times, existing and installed plants must be protected from herbicide drift. The applicator shall avoid spraying during windy conditions; if windy conditions; if windy conditions persist, the applicator shall use a large droplet size and low tank pressure and shall use a movable impermeable barrier while spraying to protect against drift. Contractor shall exercise great caution in applying the herbicide to the targeted plants only. Non-targeted plants shall not be sprayed, nor shall or tereius.

drift from nearby spraying. No herbicide application may occur within 25 feet of the creek top of bank.

- E. The Contractor shall be responsible for replacing plants that are killed due to herbicide drift or mistaken application at the Contractor's sole cost, including plant material and installation labor.
- F. Dead weed material shall be removed from all weeding efforts.

#### 3.04 OTHER MAINTENANCE

- A. During the maintenance period, the Contractor shall inspect the erosion control mats on a weekly basis, or more often if needed, and after ever rain event. The Contractor shall repair or replace mats or fiber rolls that are dislodged, damaged, ripped, torn, eroded, or otherwise caused to be non-functional. The Contractor shall also repair any erosion to earthen banks caused by failure of the erosion control mats or fiber rolls. maintenance work shall be performed within one week of locating problems, but always prior to the next winter rain event.
- B. During the maintenance period, the Contractor shall inspect the irrigation system on a weekly basis, or more often if needed. The Contractor shall repair or replace parts that damaged or non-functional. The City shall reimburse the Contractor for parts.
- C. During the Maintenance period, the Contractor shall inspect landscaping and prune plants for proper growth and to remove diseased stems, or remove obstructions on paths.

#### 3.05 CLEANUP AND COORDINATION

Throughout the maintenance period, the Contractor shall keep the project site, areas adjacent to the project site, and trails in a neat and orderly condition and free and clear from debris and discarded materials. The bridge shall be kept clean of debris, soil, and plant material from maintenance activities

#### 3.06 REMOVAL OF THE IRRIGATION SYSTEM

- A. At the end of 36 months during the maintenance period, the Contractor shall be responsible for removing the irrigation system, to include the backflow preventer, all valves, quick couplers, pressure and lateral line pipe, and all drip irrigation equipment.
- B. Prior to the removal of the irrigation system, the Contractor shall verify and coordinate all work to be completed with the Engineer and Restoration Specialist.
- C. During irrigation removal operations, all plant material shall be preserved and protected from damage to the greatest extent possible. All work shall be done under the direction and supervision of the Restoration Specialist.

#### 3.07 RECORD DRAWINGS

- A. The Contractor shall keep up-to-date as built record drawings during the maintenance period. These drawings shall be updated, as needed, and submitted to the Restoration Specialist at the end of the contract period.
- B. The record drawings shall include information on the location and size of the planting indicated by species. A legend listing all materials shall be included on the record drawings.

#### 3.08 GUARANTEE

- Plants installed under the contract shall be guaranteed for the length of the maintenance period against mortality resulting from defects in maintenance.
- B. Plant materials, including seeded areas and transplanted plants, that are dead or found to be unhealthy because of poor maintenance practices and that are therefore not in conformance with the drawings and specifications, shall be replaced according to the Restoration Specialist's direction and at the Contractor's expense. All replacements shall be in strict conformance to the drawings and specifications.

#### 3.09 INSPECTIONS AND FINAL ACCEPTANCE

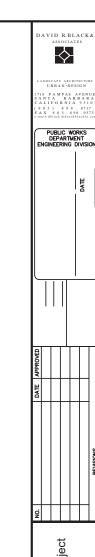
- The Restoration Specialist will conduct periodic site inspections during the maintenance period.
- At the end of the maintenance period, at the Contractor's request, the Restoration Specialist shall inspect the project site to evaluate the acceptability of the maintenance practices.
- C. Areas determined as unacceptable, due to lack of performance in accordance with the specifications, shall be reworked and replanted at the Contractor's expense, as necessary, according to the project specifications. The Contractor shall be responsible for any resulting extension of the maintenance period and will do so at no additional cost.
- D. At the time of the final acceptance observation by the Restoration Specialist, the Contractor shall have maintained the project in its entirety according to the performance standards, the drawings, these specifications, and the Restoration Specialist's direction. If, after inspection, the Restoration Specialist's sirection. If, after inspection, the Restoration Specialist is satisfied with the maintenance practices and all plant survival and weed cover goals have been met, the Contractor shall be notified in writing of final project acceptance. If, after inspection, the Restoration Specialist is dissatisfied with the maintenance to date and its conformance to the drawings and specifications, the Restoration Specialist will prepare a written punch list of necessary corrective actions on defective work for that stage. The corrections must be completed by the Contractor within 10 days of the initial observation

END OF SECTION

## MAINTENANCE SPECIFICATIONS

PHASE 1 & PHASE 2

October 17, 2011



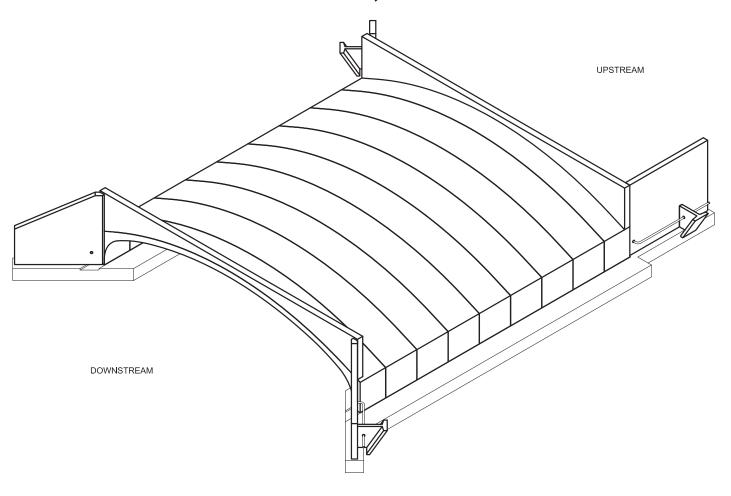
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# 433192 LOWER SYCAMORE PUNTA GORDA STREET BRIDGE

# SANTA BARBARA, CALIFORNIA



ISOMETRIC VIEW

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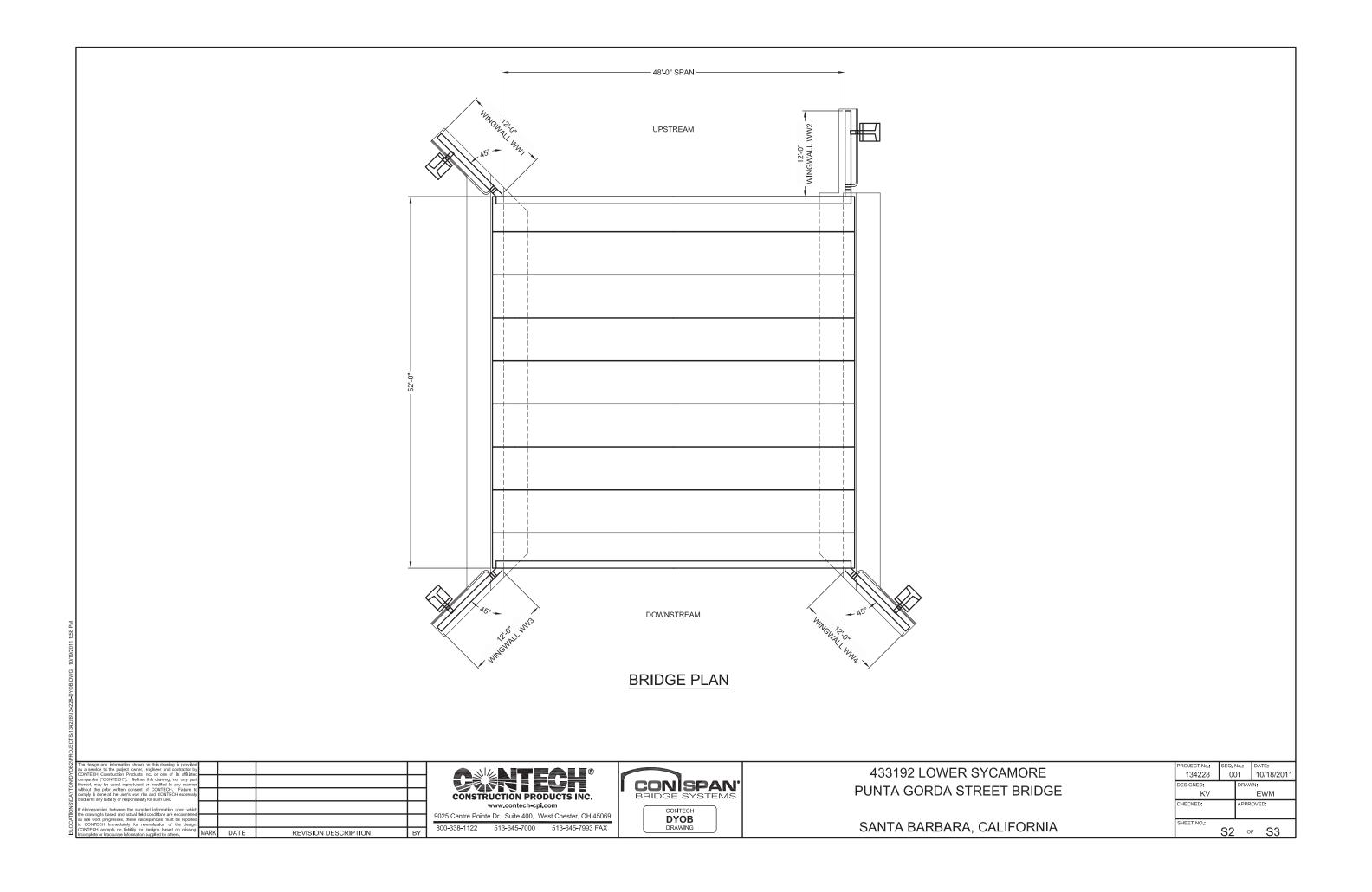


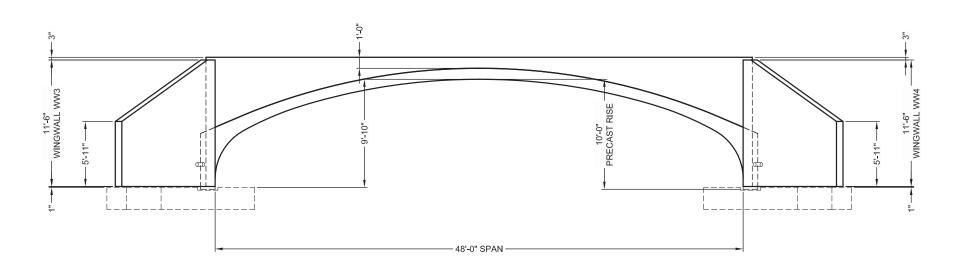
433192 LOWER SYCAMORE PUNTA GORDA STREET BRIDGE

SANTA BARBARA, CALIFORNIA

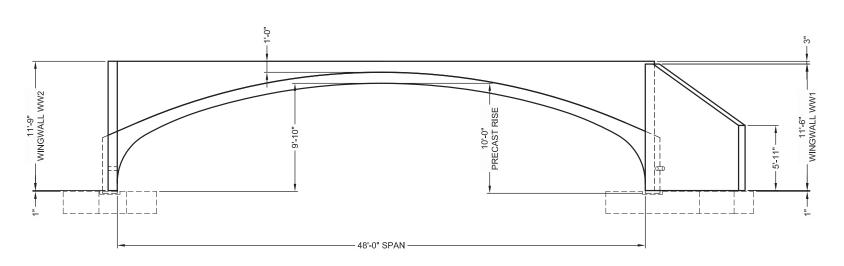
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## DOWNSTREAM END ELEVATION



## **UPSTREAM END ELEVATION**

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